# U. S. DEPARTMENT OF THE INTERIOR
# NATIONAL PARK SERVICE
# LAKE MEAD NATIONAL RECREATION AREA

# SYSTEMS CONVEYANCE AND OPERATIONS PROGRAM
# FINAL ENVIRONMENTAL IMPACT STATEMENT

# RECORD OF DECISION

## Summary

Pursuant to the National Environmental Policy Act of 1969 (Public Law 91-190) and the regulations promulgated by the Council of Environmental Quality (40 CFR Part 1500), the Department of Interior, National Park Service (NPS) has prepared this Record of Decision for the Final Environmental Impact Statement (FEIS) concerning the Systems Conveyance and Operations Program (SCOP). The SCOP includes a combination of wastewater treatment plant optimization, increased treatment, and a pipeline to discharge highly treated effluent to an alternate location in the Lower Colorado River System via Lake Mead.

The Clean Water Coalition (CWC), which is comprised of the three agencies currently responsible for wastewater treatment in the Las Vegas Valley: the City of Las Vegas (CLV), the City of Henderson (COH), and Clark County Water Reclamation District (CCWRD), proposes to implement the SCOP. The SCOP would provide an alternate discharge point for the effluent, which is currently discharged to Lake Mead through the Las Vegas Wash. The SCOP includes activities and infrastructure that would be located on lands owned or managed by private entities and CLV, COH, Clark County, Bureau of Reclamation Lower Colorado Region (Reclamation), NPS, and the U.S. Bureau of Land Management (BLM), all within Clark County, Nevada.

The NPS and Reclamation prepared the SCOP EIS as joint-lead federal agencies. However, this Record of Decision pertains exclusively to actions under the authority of the NPS. Agency-specific records of decision will be issued by other federal agencies as necessary.

## Purpose and Need

The purpose of implementing the action alternatives is to maintain water-quality standards and NPS recreational and resource values by operating a system that would allow for flexible management of wastewater flow from the Las Vegas Valley (Valley) to Lake Mead. Clark County, Nevada is one of the fastest growing counties in the United States. It is projected that the population in the area will be approximately 3,130,000 by 2035 (UNLV 2004). The quantity of effluent treated and discharged in the Valley will increase as the population of the Valley increases. Forecasts indicate that a combined maximum month flow of approximately 400 million gallons per day of municipal wastewater will need to be treated and managed in the Valley by 2050 (Black & Veatch 2004a). The year 2050 flows were extrapolated from treatment plant projections. The wastewater facilities must accommodate the additional flows while continuing to meet current or future water quality standards for the Las Vegas Wash, Las Vegas Bay, and Lake Mead.

The CWC needs a system that:

- Provides maximum flexibility for management of increasing amounts of treated effluent flows between the current discharge location at the Las Vegas Wash and Las Vegas Bay, and other locations in Lake Mead;
- Provides flexibility to meet current and future water quality standards for known pollutants, and as yet unknown standards for additional contaminants that may be regulated in the future;
- Enhances the Las Vegas Bay area of the Lake Mead National Recreation Area (LMNRA) by protecting and maintaining the recreational and resource values of the entire LMNRA and continuing to meet beneficial uses, while more than doubling the treated effluent flows discharged to Lake Mead;
- Accommodates Lake Mead's lowering water levels because the amount of mixing and dilution available in the inner Las Vegas Bay would decrease as the Lake level decreases; and
- Provides flexibility to avoid possible impacts to source-water quality at the Southern Nevada Water System intake structures.

## Selected Alternative and Decision Rationale

After thorough analysis and with due consideration for public involvement, the NPS has determined it will issue a Right-of-way permit to the CWC to construct and operate the Boulder Islands North Alternative within the LMNRA. The selected action is the same as the environmentally preferred alternative presented in the FEIS (see discussion below), which is the Boulder Islands North Alternative. The Boulder Islands North Alternative includes the use of current, conventional treatment processes, plant optimization, increased treatment, and a pipeline to convey highly treated effluent from the three treatment facilities to an alternate discharge location near the Boulder Islands in Lake Mead would be constructed.

The first segment of the pipeline, Effluent Interceptor (EI)-Alignment A, extends from the CLV treatment facility to the EI Terminus site west of Lake Las Vegas. The effluent discharged from the CLV and CCWRD's treatment facilities would bypass the lower Las Vegas Wash via the EI. The treated effluent from the COH Water Reclamation Facility would be introduced to the EI via the COH Forcemain, which crosses beneath the Las Vegas Wash in the vicinity of the Pabco Road Erosion Control Structure. The three flows would be combined north of the Pabco Road ECS and be transported to the vicinity of the Boulder Islands in Lake Mead via the Lake Conveyance System (LCS).

The majority of the Boulder Islands North LCS would be installed in a tunnel through the River Mountains. A hydroelectric power generation facility would be located at a downslope location on NPS land, in order to utilize the energy created from the drop in elevation in the LCS from the River Mountains to Lake Mead. In addition, the Boulder Basin Adaptive Management Plan (AMP) would be implemented as part of the Boulder Islands North Alternative.

As determined in the environmentally preferred analysis (as presented in the FEIS, and changed from the Draft EIS based on public comments received), under ordinary operating conditions the total phosphorus discharged to Lake Mead would not exceed 334 pounds per day (lbs/day) on an annual average basis.

The NPS determined that the selected action (Boulder Islands North Alternative) would provide the flexibility needed to manage the increasing effluent flows in the Valley, without degradation of NPS resources. In addition, this alternative would use effluent flows through the pipeline to

generate electrical power that would be used by the Alfred Merritt Smith Water Treatment Facility. The generation of hydroelectric power is considered an environmentally responsible action and would be a beneficial outcome from implementing the Boulder Islands North Alternative.

**Synopsis of Alternatives Considered**

The SCOP FEIS evaluates the potential environmental impacts associated with three pipeline alternatives, a Process Improvements Alternative (no pipeline), and the No Action Alternative (no pipeline). The three pipeline alternatives include, the Boulder Islands North Alternative, the Boulder Islands South Alternative, and the Las Vegas Bay Alternative. The Process Improvements Alternative was not analyzed as a separate alternative in the Draft EIS. In the Draft EIS, plant optimization and additional treatment technologies were considered as part of the No Action Alternative. In response to comments that additional treatment should be considered as a separate alternative, the existing No Action Alternative has been divided into a Process Improvements Alternative, in which optimization plus additional treatment are provided, and a No Action Alternative, in which optimization is provided but additional treatment is not.

All of the alternatives analyzed in the FEIS include the use of conventional treatment processes and plant optimization to attempt to meet water quality standards. In addition to the use of conventional treatment processes and plant optimization, the three pipeline alternatives include additional treatment, as needed, and construction and operation of a pipeline that would transport highly treated effluent from the three treatment facilities to a receiving area underwater, within the Colorado River system. The Process Improvements Alternative adds microfiltration/ultrafiltration (MF/UF) membranes to plant optimization processes.

The pipeline alternatives would allow for flexible management of the highly treated effluent. A controlled amount of effluent would continue to be discharged to the Las Vegas Wash at each facility. The discharge amount, velocity, and direction from the diffuser would also be flexibly operated depending on the conditions of Lake Mead and the objectives identified in the Boulder Basin AMP.

No Action Alternative - A pipeline would not be constructed to transport effluent from the treatment facilities. Current, conventional treatment processes and plant optimization would be used to attempt to meet requirements of the Nevada Division of Environmental Protection (NDEP) through the National Pollutant Discharge Elimination System permitting program. Total phosphorus (TP) from the combined effluent of the treatment facilities is currently treated to 0.2 milligrams per liter (mg/L). Each of the three treatment plants is unique in their design, processes, facility improvement schedules, and varying capabilities of phosphorus removal. Nonetheless, the three agencies responsible for municipal wastewater treatment would continue to coordinate treatment and discharges to achieve combined TP levels of 0.14 mg/L during plant optimization.

Boulder Islands North Alternative - This alternative is identified and analyzed in the FEIS as the Preferred Alternative (and is also the environmentally preferred). As noted in the summary above, a pipeline to convey highly treated effluent from three treatment facilities to an alternate discharge location near the Boulder Islands in Lake Mead would be constructed. The three flows would be combined and transported to the vicinity of the Boulder Islands in Lake Mead via the Lake Conveyance System (LCS). The Boulder Basin AMP would be implemented as part of the Boulder Islands North Alternative. The selected alternative is described in detail in the FEIS.

Boulder Islands South Alternative - A pipeline to convey highly treated effluent from the three treatment facilities to an alternate discharge location near the Boulder Islands in Lake Mead would be constructed. The first segment of the pipeline, EI-Alignment B, extends from the CLV treatment facility to the EI Terminus location west of Lake Las Vegas. The effluent discharged

from the CLV and CCWRD's treatment facilities would bypass the upper Las Vegas Wash via the EI. The South Lateral Pipeline would convey the treated effluent from the COH Water Reclamation Facility. The three flows would be combined at the EI Terminus and be either returned to the Las Vegas Wash at a point upstream of Lake Las Vegas, or be transported to the vicinity of the Boulder Islands in Lake Mead via the LCS. The majority of the Boulder Islands LCS would be installed in a tunnel through the River Mountains. The Boulder Basin AMP would be implemented as part of this alternative.

Las Vegas Bay Alternative - A pipeline to convey highly treated effluent from the three treatment facilities to an alternate discharge location in the Las Vegas Bay of Lake Mead would be constructed. The first segment of the pipeline, EI-Alignment B is the same as described for the Boulder Islands South Alternative. The three flows would be combined at the EI Terminus and be either returned to the Las Vegas Wash at a point upstream of Lake Las Vegas, or be transported to the Las Vegas Bay in Lake Mead via the LCS. The majority of the Las Vegas Bay LCS would be installed in a tunnel through the River Mountains. The Boulder Basin AMP would be implemented as part of this alternative.

Process Improvements Alternative - Under the Process Improvements Alternative, a pipeline would not be constructed. Highly treated effluent would continue to be discharged to the Las Vegas Wash at the existing discharge locations, and effluent flows would continue to enter the Las Vegas Bay for mixing and diffusion in an uncontrolled fashion. In addition to current, conventional treatment processes and plant optimization, best available technologies would be implemented to maintain an acceptable TP loading. An example of the type of technology that may be implemented to achieve the target TP level of 0.05 mg/L is MF/UF membranes.

## Determination of the Environmentally Preferred Alternative

The environmentally preferred alternative is the course of action that would best meet the requirements of §101 of NEPA, and would most satisfy the following requirements:

- Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations.
- Ensure for all generations safe, healthful, productive, and aesthetically and culturally pleasing surroundings.
- Attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable or unintended consequences.
- Preserve important historic, cultural, and natural aspects of our national heritage, and maintain, wherever possible, an environment that supports diversity and variety of individual choice.
- Achieve a balance between population and resource use that would permit high standards of living and a wide sharing of life's amenities, and
- Enhance the quality of renewable resources, and approach the maximum attainable recycling of depletable resources.

In summary, the environmentally preferred alternative is the alternative that causes the least damage to the biological and physical environment, and best protects, preserves, and enhances historic, cultural, and natural resources.

The No Action Alternative, while it eliminates the need for construction on federally managed lands, would result in water quality standard exceedances in the Las Vegas Bay. The water quality standard exceedances may result in increased algae production, which may have an

adverse effect on recreation in the Las Vegas Bay area of Lake Mead. In addition, the No Action Alternative does not provide the flexibility needed to manage the increasing effluent flows in the Valley. For these reasons, the No Action Alternative is not preferred from an environmental perspective.

The impacts resulting from the Las Vegas Bay, Boulder Islands South, and Boulder Islands North alternatives are similar. The three pipeline alternatives would result in minor, temporary impacts to surface water, biological resources, recreation, noise, air quality, visual resources, and traffic during construction. The Las Vegas Bay Alternative is not preferred from an environmental perspective because although water quality standards would not be exceeded, modeling indicates that effluent discharged in the Las Vegas Bay would not undergo as much dilution as discharge in the vicinity of the Boulder Islands.

Although the Process Improvements Alternative was analyzed in the FEIS, after reviewing the additional information and analyses, the Final EIS concludes that the Process Improvements Alternative cannot meet key elements of the purpose and need of the project, including the needs to ensure compliance with water quality standards for Lake Mead at a Lake level of 1,000 ft, and to provide the management flexibility to respond to future water quality issues and regulatory requirements.

The Boulder Islands South and Boulder Islands North alternatives result in similar impacts. However, the Boulder Islands South Alternative would generate a larger quantity of spoils that would require disposal. The increased spoil quantity results in an increased number of trucks needed to haul the spoils to designated disposal areas. In addition, the Boulder Islands South Alternative has the potential to affect more archaeologically significant sites than the other alternatives. For these reasons, the Boulder Islands South Alternative is not preferred from an environmental perspective.

The Boulder Islands North Alternative (the selected action) was deemed to be the environmentally preferable course of action because, overall, it would best meet the requirements of §101 of NEPA. It would provide the flexibility needed to manage the increasing effluent flows in the Valley, without degradation of Reclamation and NPS resources. In addition, this alternative would use effluent flows through the pipeline to generate electrical power that would be used by the AMSWTF. Generation of hydroelectric power is considered an environmentally responsible action and is a beneficial outcome resulting from implementation of the Boulder Islands North Alternative.

## Findings on Impairment of Park Resources and Values

The NPS has determined that implementing the Boulder Islands North Alternative will not constitute or lead to impairment of park resources and values at the LMNRA. In reaching this determination the park's enabling legislation (P.L. 88-639), General Management Plan (NPS 1986), Strategic Plan (NPS 1999), and Lake Management Plan (2002) were reviewed to ascertain the park's purpose and significance, resource values, and resource management goals or desired future conditions; the management objectives specific to resource protection goals at the park were identified; thresholds were established for each resource of concern to determine the context, intensity, and duration of impacts; and an analysis was conducted to determine if the magnitude of the impact reached the level of impairment defined in NPS Management Policies. Based on a thorough analysis of the environmental impacts described in the SCOP FEIS and public comments received, the NPS has concluded that the selected action, which will meet Nevada Division of Environmental Protection discharge requirements, will not result in impairment of any of the resources and values of the LMNRA.

NPS Management Policies require analysis of potential effects to determine whether the actions would impair park resources. As stated in Management Policies §1.4.5, the impairment that is prohibited…is an impact that, in the professional judgment of the responsible NPS manager, would harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resource or values. Whether an impact meets this definition depends on the particular resources and values that would be affected; the severity, duration, and timing of the impact; the direct and indirect effects of the impact; and the cumulative effects of the impact in question and other impacts. Any impact to any park resource or value may constitute an impairment. An impact would be more likely to constitute an impairment to the extent that it affects a resource or value whose conservation is:

- Necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park;
- Key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; or
- Identified as a goal in the park's general management plan or other relevant NPS planning documents.

When fully implemented, the selected action will not impair resources or values. Although negative impacts could occur during construction and possibly operation of the SCOP, the predicted impacts are at acceptable levels, generally short term, and may be mitigated through management actions. Furthermore, this action will not significantly impact a resource or value whose conservation is 1) necessary to fulfill specific legislative purposes; 2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; or 3) identified as a goal in the park's general management plan or other relevant NPS planning document.

Based on the evaluation in the SCOP FEIS, the NPS believes the selected action will not constitute impairment to park resource or values. As set forth in the preferred alternative, implementation of the Boulder Basin AMP is fundamental to the selected action. A Memorandum of Understanding (MOU) to implement the Boulder Basin AMP was approved and signed by the NPS, Reclamation, CWC, and Southern Nevada Water Authority. The MOU was adopted by all parties in January 2007. Mitigating measures that will be implemented are described in the following section.

## Description of Mitigating Measures and Monitoring Plans to Minimize Harm

Measures to avoid or minimize environmental impacts that could result from implementation of the selected alternative have been identified and incorporated into the selected action. These mitigation measures as presented in the SCOP FEIS are described by resource. Unless otherwise indicated, implementation of the mitigation measures is the responsibility of the CWC and its contractors. NPS will provide monitoring and oversight to ensure compliance.

### Water Quality

Surface water: Open-trench excavation will be conducted with caution and attention to any major ephemeral washes that are crossed to ensure that the open trench does not cross two major ephemeral washes at any one time. In addition, the sequencing of excavation would minimize the amount of time the trench will remain open.

Surface water quality: The reduction in flows through the Las Vegas Wash would result in less dilution of non-effluent related parameters such as selenium. Potential impacts resulting from increased concentrations of selenium would be addressed through the Boulder Basin AMP.

Biological Resources

An approved restoration plan will be developed and implemented to restore the vegetation, soil conditions, and wildlife habitat to pre-construction conditions. Additionally, implementation, monitoring, and success criteria will be established to ensure the successful reclamation of the project area.

Erosion and sediment control devices will be used to prevent impacts to the riparian areas and Lake Mead. Once on Lake Mead, the construction activities will implement Zero Tolerance Management Practices for hazardous material spills and contamination directly into the Lake.

To reduce the chances of spreading noxious weeds into the project area, the undercarriages of construction vehicles will be washed at designated wash stations located off the project site prior to working on the project. The disturbed areas will be monitored for noxious weeds and exotic plants to ensure that establishment of these species does not occur.

Sport fish: To minimize impacts to sport fish, construction of the pipeline and dredging activities within the aquatic environment will be conducted after the absence of sport fish in the location of the dredging location is confirmed with netting and electro-fishing efforts. These efforts will be utilized to salvage and relocate any fish species in the area before the installation of the turbidity curtain. Once the turbidity curtain is in place, other salvage efforts could be conducted to remove the remaining fish.

The reasonable and prudent measures recommended for this project are based on the biological opinion rendered by the U.S. Fish and Wildlife Service (USFWS) for the SCOP on June 12, 2007. The details of the reasonable and prudent measures for the SCOP are fully described in the biological opinion.

Desert tortoise: The implementation of the following reasonable and prudent measures will minimize mortality and injury of desert tortoise due to project activities, capture, and handling.

- Prior to initiation of construction, an authorized biologist shall present an endangered species education program to all personnel who will be on site.
- The NPS shall ensure that an authorized desert tortoise biologist is on-site during construction activities.
- Each day prior to initiation of surface-disturbing activities within desert tortoise habitat areas not fenced to exclude tortoises, an authorized biologist(s) shall survey areas to be disturbed for desert tortoises using techniques providing 100-percent coverage.
- All potential desert tortoise burrows located within the project area proposed for disturbance shall be flagged and avoided during construction, if possible. Burrows that cannot be avoided, whether occupied or vacant, shall be excavated by hand by an authorized desert tortoise biologist and collapsed or blocked to prevent occupation by desert tortoises.
- Tortoise fencing or ramps shall be installed at work sites, when determined necessary by NPS or other jurisdictional agency.
- All desert tortoises observed by project workers shall be reported immediately to the qualified biologist.
- An authorized biologist(s) shall be assigned to monitor heavy equipment during construction for the protection of desert tortoises and to monitor compliance.
- All fuel, transmission or brake fluid leaks, or other hazardous waste leaks, spills or releases shall be reported immediately to the NPS. Spill material shall be removed and disposed of in

an approved off-site landfill. Servicing of construction equipment will take place only at a designated area. All fuel or hazardous waste leaks, spills, or releases will be stopped or repaired immediately and cleaned up at the time of occurrence. Service/maintenance vehicles will carry a bucket and pads to absorb leaks or spills.

- Vehicles shall not exceed 20 miles per hour on access roads.
- Project personnel shall exercise caution when commuting to the project area and obey speed limits to minimize any chance for the inadvertent injury or mortality of species encountered on roads leading to and from the project site.
- Any time a vehicle is parked, whether the engine is engaged or not, the ground around and underneath the vehicle shall be inspected for desert tortoises prior to moving the vehicle.
- Dogs and firearms shall be prohibited from the project site with the exception of security and law enforcement activities.
- Cross-country travel and travel outside designated areas shall be prohibited.
- If trenches or other excavations do not contain 2:1 or lesser slopes, escape ramps consisting of loose dirt shall be deposited in all holes or trenches deeper than 1 foot to facilitate escape of desert tortoises that may have become entrapped.
- Any open trench or holes greater than 1-foot deep shall be inspected by a biological monitor.
- Any unburied pipe, either in the trench or out of the trench, shall be capped at the ends to prevent entry by wildlife. All pipes will be checked for the presence of tortoises prior to capping.

The implementation of the following reasonable and prudent measure would minimize predation on desert tortoises by predators drawn to the project area.

- Implement a litter control program to reduce the attractiveness of the area to opportunistic predators such as desert kit fox, coyotes, and common ravens.

The implementation of the following reasonable and prudent measures would minimize loss and long-term degradation and fragmentation of desert tortoise habitat, such as soil compaction, erosion, crushed vegetation, or introduction of weeds as a result of construction and maintenance activities.

- The boundaries of all areas to be disturbed shall be flagged before beginning any activities, and all disturbances shall be confined to the flagged areas. All project vehicles and equipment will be confined to the flagged areas. Survey crew vehicles will remain on existing roads. Disturbance beyond the construction zone is prohibited except to complete a specific task within designated areas or emergency situations.
- Prior to construction, cacti and yucca to be impacted by project activities shall be excavated and transplanted as part of the restoration in accordance with NPS standards.
- Stockpile areas, vehicle turn-arounds, and vehicle service locations will be approved by NPS prior to initiation of construction activities.
- Topsoil will be removed to a depth of 6 to 12 inches in all areas of potential seed-bearing soil where ground breaking will take place. Salvaged topsoil will be used in post-construction restoration efforts.
- Where topsoil removal or project excavations are not required, any vegetation in the right-of-way will be "bladed off" at ground level or simply crushed to preserve the root systems of the plants.

- A weed-control plan and habitat restoration plan shall be prepared and approved by the NPS and USFWS for the project prior to initiation of surface-disturbing activities.
- Herbicides shall not be used on the rights-of-way, access roads, pipeline corridors, or fence lines unless approved in writing by the USFWS.
- The NPS shall ensure payment by CWC of remuneration fees prior to surface-disturbance associated with the project. The NPS shall ensure implementation of the measures to comply with the reasonable and prudent measures, terms and conditions, reporting requirements, and reinitiation requirements contained in the biological opinion for SCOP.
- The NPS shall designate a field contact representative.
- The on-site biologist shall record each observation of desert tortoise handled and will prepare a report to be distributed to NPS, USFWS, and Nevada Department of Wildlife (NDOW) no later than 90 days following the completion of construction activity.

Razorback sucker: The following reasonable and prudent measures will be implemented to minimize harassment and injury of the Razorback sucker due to emerging pollutants associated with the SCOP project.

- The CWC shall participate in collaborative research with the USFWS beginning in 2007, to investigate enhanced removal technologies for endocrine disrupting chemicals (EDCs) present in wastewater effluents.
- The CWC shall provide funding to Clark County Water Reclamation District and Southern Nevada Water Authority (SNWA) in the amount of $100,000 to support fathead minnow studies.
- The CWC shall provide Membrane Filtration and Ozonation equipment suitable to support the studies.
- The CWC shall also make arrangements with the SNWA for the services of Dr. Shane Snyder as a principal investigator on the study.
- All aspects of the study, including publications, shall be agreed upon by the principal investigators.
- If the results of the fathead lifecycle collaborative study demonstrate adverse effects to fathead minnows due to constituents in effluents at concentrations that may occur in areas of Lake Mead utilized by razorback sucker; and additional peer-reviewed studies on surrogate fish species further support the likelihood of effluent-related injury to razorback sucker in Lake Mead; NPS shall reinitiate formal consultation that will prompt the CWC to identify and implement methods for enhanced treatment of wastewater; or other actions necessary to reduce take.

The following reasonable and prudent measures will be implemented to minimize harassment and injury due to conventional pollutants associated with the SCOP project.

- If new evidence becomes available that demonstrates that conventional pollutants are likely to cause harm or injury to razorback suckers in Lake Mead, NPS shall reinitiate formal consultation that will prompt the CWC to identify and implement methods for enhanced treatment of wastewater; or other actions necessary to reduce take.
- Construction within Lake Mead shall be conducted using appropriate methods to control the dispersion of suspended solids and turbidity in the water column generated by construction activities.

The following reasonable and prudent measures will be implemented to minimize harassment and injury due to selenium associated with the SCOP project.

- The CWC shall provide $250,000 to the USFWS's Division of Environmental Quality to contribute towards research that will assist in establishing a national selenium criterion that is protective of aquatic dependant wildlife.
- The CWC shall manage wastewater flows per the Boulder Basin AMP. If operations cause an exceedance of State or Federal water quality standards for selenium in Las Vegas Bay, or if such operations cause selenium levels that are not protective of razorback suckers, NPS shall reinitiate formal consultation to identify and implement methods for protecting razorbacks and preventing take.
- The CWC shall conduct water quality sampling in the Las Vegas Bay to monitor changes to selenium levels due to the diversion of effluents by the SCOP. The CWC shall coordinate with the USFWS, Lake Mead Water Quality Forum, Las Vegas Wash Coordination Committee, and the Selenium Subcommittee to determine the most appropriate sampling methods and locations. The resulting data will be used to evaluate potential impacts of selenium and to implement management actions as necessary to ensure protection of larval and adult razorback suckers.
- Once selenium in the Las Vegas Bay has been fully characterized, the CWC shall coordinate with the USFWS to manage the SCOP effluent flows to reduce risks to razorback suckers.

The NPS shall ensure implementation of the following measures to monitor, assess, and report impacts to water quality and Lake Mead from SCOP-related activities.

- An Emerging Compounds of Concern (ECC) Monitoring Program shall be implemented by the CWC to provide background data on fate and transport of emerging pollutants, as well as sampling to fully evaluate baseline and project-related impacts after SCOP is operational. A report containing the monitoring data and interpretation of the data shall be prepared by the CWC. The Core Management Team (CMT) shall conduct a review of ECC monitoring and research results on a triennial basis.
- A Selenium Management Plan (SMP) shall be developed by the CWC in coordination with the USFWS within 24 months of the issuance of the Biological Opinion. The CWC shall work with federal, state, and local stakeholders to implement the SMP and to identify actions to manage selenium concentrations that are protective of razorback suckers and that meet State and Federal water quality standards for selenium.
- The CWC's contractor(s) shall prepare a Spill Prevention Control and Countermeasure (SPCC) plan to prevent releases of contaminants during construction.

Cultural Resources

The following measures will be implemented to minimize the potential for damage or destruction of sensitive cultural resources. The details of the measures to protect the cultural resources are presented in the Programmatic Agreement approved and signed by the NPS, State Historic Preservation Office, and CWC in April 2007.

The subaqueous pipeline configuration will cross the Six Companies, Inc. Railroad (SCIRR) (26CK4046B) and the Six Companies, Inc. Service Road (26CK7254). When placing the subaqueous pipeline configuration, the CWC will insure that none of the precast concrete ballast blocks are placed on the SCIRR (26CK4046B) or the Six Companies, Inc. Service Road (26CK7254), that the sites are not damaged when the pipes are anchored to the bottom of the lake, and that none of the subaqueous pipelines are in direct contact with any portion of the sites.

The NPS and Reclamation will fund the NPS Submerged Resources Center (SRC) to assist in the following recording plan with funding from the Southern Nevada Public Lands Management Act Round 5 Preserve America proposal. The CWC will contract for an architectural historian meeting standards set forth in the *Secretary of the Interior's Professional Qualification Standards* (48 FR 44738-9) to assist in the following recording plan.

Primary Records/Archival Research: The architectural historian will conduct research in the Reclamation's collections at various locations in the western U.S.

Site Mapping: The SRC will use side scan sonar to map the underwater features of concern.
Photo Documentation: Photo documentation of the sites will be conducted using an ROV.

1930s Aerial Photos: The CWC or their representative will obtain contact prints of the photos showing the Boulder Basin area, and raw image scans and individually orthorectified frames for each aerial photo and an orthorectifed mosaic of the aerial photos.
Treatment Plan: The NPS will prepare a report documenting the results of the ROV inspection of the placement of the subaqueous pipeline configuration crossing of sites 26CK4046B and 26CK7254.

Recording Plan: Deliverables for the Recording Plan include: side scan sonar and ROV data; a comprehensive report; an addendum to the existing National Register of Historic Places Nomination titled *Hoover Dam Railroads Non-Contiguous Historic District* (ACRE 2003); updated site forms for 26CK4046B, 26CK7254, and 26CK7285; and 1930s aerial photos.

## Recreation

Construction activities within the LMNRA may impact visitors. Therefore, to minimize the impacts to LMNRA visitors, these types of activities would be restricted to the off-season, October through March, unless it is demonstrated that visitors are not impacted. Land surfaces disturbed by construction activities under the pipeline alternatives would be rehabilitated and restored, as applicable, to lessen or eliminate potential adverse effects.

During construction, the public would be routed around or away from construction areas. Barricades and temporary construction fencing would be used on land, and buoys would be used in the water to temporarily exclude the public from the construction area for safety purposes.

Water activities in the vicinity of the Lake Mead Resort Marina and Boulder Islands would be restricted during construction of the pipeline and diffuser. To minimize the impacts to Marina and Lake users, Notices to Mariners will be published and posted prior to construction activities. Aids to Navigation for Inland Waterways will be implemented, and a minimum-width construction corridor will be used to ensure that at least one-way boat traffic is maintained throughout the construction period.

## Hazardous Materials

Construction activities and maintenance of construction equipment could create the potential for hazardous material spills. The contractor would be required to clean up any leaks or spills immediately and responsibly dispose of any contaminated materials or soils at an approved recycling, incineration, or disposal facility.

Vehicles carrying hazardous materials would be equipped with appropriate equipment and materials to contain a small spill should one occur during transport. Vehicles and storage

containers would be properly signed/marked and inspected for leakage and other potential safety problems prior to transportation.

Every effort would be made to minimize the production of hazardous waste during the project, such as using non-hazardous substances when available, minimizing the amount of hazardous materials used for the project, and recycling and filtering hazardous materials. Furthermore, refueling locations on flat terrain/ground decreases the chance of a spilled substance reaching a stream, wetland, or lake.

### Air Quality

This project is subject to Clark County air quality regulations, which require a number of specific actions by construction contractors, to reduce emissions of criteria pollutants during construction. The EPA has established new air quality standards for diesel engines for the year 2007. The 2007 diesel engines will reduce PM by 90 percent, and reduce sulfur to 15 ppm, which will reduce NOx by 50 percent (EPA 2004c).

### Traffic

To reduce the magnitude of potentially significant traffic impacts, construction traffic management plans would be developed as part of the project approval process as specific segments or phases of the project are submitted to the NPS. Implementation of the various plans allows construction of the proposed project to proceed efficiently and safely while maintaining acceptable traffic operations.

Access routes through the LMNRA will be determined in coordination with the NPS. The NPS will also be involved in the development and review of any construction traffic-related plans for areas within the LMNRA.

The current condition of roads within the LMNRA including Lakeshore Drive would be maintained to the extent possible. Road condition assessment and monitoring would be established by the NPS before construction activities begin. Damage to the roadway surfaces would be repaired in accordance with NPS guidance. In addition, the CWC would accept financial responsibility for the repair of roadways damaged as a result of SCOP construction.

### Paleontological Resources

Significant impacts to paleontological resources are not expected to result from the construction or operation of the preferred alternative. However, ground disturbance associated with construction activities has the potential to damage or destroy any fossils that may be present. Therefore, a field survey will be conducted on previously undisturbed lands that have a high potential to produce paleontological resources within the construction footprint.

## Public Involvement and Agency Coordination in Decision-making Process

Public involvement activities and coordination with federal, state, and local agencies occurred throughout the conservation planning and environmental impact analysis process. The following paragraphs chronologically summarize the public involvement and coordination activities.

July 2002:_The Notice of Intent to prepare an EIS for the SCOP was published in the *Federal Register* 144 on July 26, 2002. Notices were also published in local and regional newspapers including the Las Vegas *Review Journal*, Henderson *Home News*, Arizona *Republic*, *Desert Sun*,

Los Angeles *Times*, and San Diego *Union-Tribune*. Postcards were mailed to residents in southern Nevada, Arizona, and California notifying them of the scoping meetings.

The two co-lead federal agencies, NPS and Reclamation, sent letters to 23 federal, state, and local agencies on July 29, 2002 offering cooperating status during preparation of the SCOP EIS. The agencies that accepted cooperating-agency status are the U.S. Army Corps of Engineers, U.S. Bureau of Land Management, the Colorado River Commission of Nevada, and the Metropolitan Water District of Southern California. General functions applicable to all cooperating agencies were to:

- Provide land-use plans and other reference documents that could assist in the analysis;
- Coordinate internal reviews and provide one set of comments for the Preliminary Draft EIS to assure accuracy;
- Attend and participate in periodic meetings such as technical working groups, public meetings and hearings, and interagency meetings related to the SCOP EIS; and
- Assist, where applicable, with response to public comments.

A SCOP EIS Compliance Team was formed early in the NEPA process to promote open communication among the co-lead agencies, cooperating agencies, and project proponent. Compliance Team meetings were held twice per month. Meeting agendas and notes were regularly distributed to all Compliance Team members.

August 2002: Letters notifying tribal members of the proposed project and upcoming Scoping Meetings were mailed on August 9, 2002, to 31 individual members representing 19 Native American Tribes located near and downstream of the proposed project. Attached to the letter was a copy of the Federal Register NOI to prepare an EIS.

The scoping meetings were held from August 12, 2002 to August 23, 2002 in Henderson and Las Vegas, NV; Tempe and Phoenix, AZ; and Palm Springs and San Diego, CA. Fact sheets, maps, and comment forms were available at the scoping meetings. No tribal members attended the Scoping Meetings. A total of 61 people attended the scoping meetings. The issues and concerns that were identified through written and oral comments during the scoping process included:

- Identification of funding sources for the project;
- Impacts on the Wetlands Park including the impacts resulting from construction and operation of the EI and the amount of effluent and flood waters that will flow through the wetlands on a daily, seasonal, and annual basis;
- Sediment flows into Lake Mead;
- Discharge of effluent below Hoover Dam;
- Water quality including salinity loads, turbidity levels, phosphate levels, and the presence (or absence) of metals, endocrine disruptors, personal care products, and pharmaceuticals;
- Water quantity;
- Indirect environmental impacts;
- Impacts to Las Vegas drinking water;
- Impacts to downstream users;
- Impacts to recreation at Lake Mead and downstream of Hoover Dam;
- Return flow credits; and

- Visual impacts.

December 2002: On December 5, 2002 the governing board of the CWC established the CWC Citizens Advisory Committee (CWCCAC) to gather public input on water- and wastewater-related issues impacting the southern Nevada watershed and parts of the lower Colorado River. On December 19, 2002, the CWC Board appointed members to serve on the CWCCAC. The CWCCAC process included:

- Identification of the CWCCAC objectives;
- Development of understanding regarding the regional wastewater and water resource systems;
- Identification of the CWCCAC's Areas of Concern;
- Development of the CWCCAC's Problem Statement;
- Development of understanding regarding the potential solutions to the problem;
- Development of evaluation criteria based on the areas of concern;
- Application of weights and rating of alternative discharge locations against evaluation criteria; and
- Preparation and presentation of CWCCAC recommendations to the CWC.

The CWCCAC interfaced with the public and provided an opportunity for open discussion and public participation in the overall process. After evaluation of the issues, the CWCCAC formulated potential solutions and made critical recommendations to the CWC Board regarding the alternatives that should be carried forward in the EIS.

January 2003: A preliminary meeting with the USFWS was held to discuss the proposed project and any concerns regarding biological resources. The USFWS expressed concerns regarding potential water quality issues and the impact on razorback suckers in Lake Mead. Concerns also included the possible increase of constituent concentrations in the Las Vegas Wash resulting from the removal of highly treated effluent, which currently dilutes these constituent concentrations. It was agreed that the USFWS would review the Preliminary Draft Biological Assessment for SCOP prior to initiation of the formal Section 7 consultation process.

March 2004: A Native American Coordination Meeting was held on March 31, 2004. Invitations were sent to the same tribal members that received invitations to the scoping meetings. Three individuals representing the Ft. Mojave, Las Vegas Paiute Tribal Council, and Colorado River Indian Tribe (CRIT) attended the meeting. The issues and concerns that were identified included:

- Discharge of effluent below Hoover Dam;
- Water quality including salinity loads, turbidity levels, phosphate levels, and the presence (or absence) of metals, endocrine disruptors, personal care products, and pharmaceuticals;
- Water quantity; and
- Impacts to downstream users.

September 2005: The Draft Biological Assessment for SCOP was submitted to the USFWS for review. A meeting to discuss the USFWSs' comments and recommended revisions was held.

Twenty five project presentations and meetings were held with government agencies, community development organizations, businesses, labor organizations, special-interest groups, and the media throughout September 2005. Meeting participants included the City of Henderson, City of North Las Vegas, City of Las Vegas, Boulder City, Clark County School District, State Public

Works Board, Nevada Division of Water Resources, Nevada Development Authority, CB Richard Ellis, Nevada Resort Association, Mandalay Resort Group, Las Vegas Chamber of Commerce, Latin Chamber of Commerce, Henderson Chamber of Commerce, Urban Chamber of Commerce, Asian Chamber of Commerce, AFL-CIO, Building Trades Union, Culinary Union, Sierra Club, Outside Las Vegas Foundation, Las Vegas Review Journal, and Channel 8.

October 2005: The Draft SCOP EIS was distributed for review in early October 2005. One-hundred and forty two hard copies and 127 CD copies of the Draft EIS were distributed via the U.S. Postal Service, Federal Express, and United Parcel Service. Copies of the Draft EIS were available for review at 21 libraries in Nevada, Arizona, California, and Utah (and included the Boulder City Library, University of Nevada-Las Vegas, Clark County Community College Learning Resource Center, Sunrise Public Library, Clark County Library, Moapa Valley Library, Green Valley Library, Laughlin Library, James I. Gibson Library, Searchlight Library, Las Vegas Public Library, Mesquite Library, Sahara West Library, Burton Barr Central Library, Tempe Public Library, Meadview Community Library, University of Arizona Library, Mohave County Library, Environmental Services Library, Palm Springs Public Library, and Washington County Library). The Draft EIS was also posted on the CWC website and the NPS LMNRA website.

A Notice of Availability (NOA) was published by the NPS/Reclamation in the *Federal Register* on October 5, 2005 and by the Environmental Protection Agency (EPA) on October 7, 2005 announcing the availability of the Draft EIS for public review and comment. The 60-day comment period began on October 7, 2005 and ended on December 7, 2005. Comment letters were accepted through January 30, 2006.

Notices announcing the Draft EIS public hearings were published in the Henderson *Home News* on September 29 and October 13, 2005; the Las Vegas *Review Journal* on October 2 and 16, 2005; the Kingman *Daily Miner*, Arizona *Republic*, Los Angeles *Times*, San Diego *Tribune*, and *Desert Sun* on October 9 and 23, 2005.

Nine public meetings were held in Nevada, Arizona, and California between October 17, 2005 and October 28, 2005. The public meetings were held to provide the public an opportunity to comment on the potential environmental impacts as described in the Draft EIS. Fact sheets and maps were available at the public meetings. Comment sheets were provided for people to submit written comments, and a stenographer was on hand to record verbal comments. The public was also encouraged to comment via email at eis@cleanwatercoalition.com.

A total of 36 people attended the public meetings, and four meeting attendees provided verbal comments. More than 500 written and oral comments were received on the Draft EIS from approximately 70 commenters. Common issues and concerns that were identified pertained to:

- Process Improvements Alternative;
- Range of alternatives;
- More detail regarding plant optimization;
- Impacts to downstream users;
- Impacts to water quality in the Las Vegas Wash;
- Impacts of endocrine disrupting chemicals and pharmaceuticals and personal care products;
- Destratification of Lake Mead and its effect on water quality;
- Phosphorus loading in Lake Mead and through Hoover Dam, related concerns regarding the years used for the baseline;

- Potential impacts to the Razorback sucker and the Lower Colorado River Multi-species Conservation Program;
- Adaptive Management Plan; and
- Effluent flow volume in the Las Vegas Wash.

In response to comments, the alternatives were modified, additional impacts analyses were conducted, and additional information was presented in the FEIS. The three pipeline alternatives were modified to indicate that under ordinary operating conditions, the total phosphorus discharged to Lake Mead would not exceed 334 pounds per day on an annual average basis. Therefore, in the FEIS, the Boulder Islands North, Boulder Islands South, and Las Vegas Bay alternatives include a pipeline, plant optimization, and increased treatment (as needed).

In the Draft EIS, plant optimization and additional treatment technologies were considered as part of the No Action Alternative. In response to comments that additional treatment should be considered as a separate alternative, the existing No Action Alternative has been divided into a Process Improvements Alternative, in which optimization plus additional treatment are provided, and a No Action Alternative, in which optimization is provided but additional treatment is not. In the FEIS, the Process Improvements Alternative includes information provided by commenters and analysis developed in response to those comments.

Additional water quality modeling and impacts analyses were conducted as a result of the comments regarding endocrine disrupting chemicals and pharmaceuticals and personal care products, and concerns regarding overall water quality in the Las Vegas Wash and downstream of Hoover Dam. Additionally, an independent consultant, Intertox, which specializes in environmental toxicology, public health, and risk assessment conducted research and prepared a summary of the available data and unknowns that exist regarding endocrine disrupting chemicals and pharmaceuticals and personal care products, and their potential impacts to biological resources and humans.

Details to further define plant optimization and the Boulder Basin Adaptive Management Plan were added to the FEIS. Attachments were included in Appendix D, Water Quality Technical Report, to provide additional information about the destratification of Lake Mead and the phosphorus load that passes through Hoover Dam.

Nine project presentations and meetings were held with businesses and downstream users in October 2005. Meeting participants included MGM Mirage, City of Scottsdale, City of Phoenix, Central Arizona Water Conservation District, City of Tempe, City of Tucson, Pima County, and Bullhead City Council.

January 2006: Five project presentations and meetings were held during January 2006. Meeting participants included the City of Phoenix, Boulder City Rotary Club, Henderson Rotary Club, Las Vegas Central Rotary Club, and Laughlin Chamber of Commerce

February 2006: Multiple project presentations and meetings were held during February 2006. Meeting participants included the Bullhead City Council, Clark County Parks and Recreation, and the Las Vegas West Rotary Club.

March 2006: A letter to the Nevada State Historic Preservation Office (SHPO) and the Advisory Council on Historic Preservation from the NPS, dated March 17, 2006 initiated consultation under the National Historic Preservation Act, Section 106. Coordination with the SHPO began in continued through the end of the Section 106 consultation process.

April 2006: Multiple project presentations and meetings were held during April 2006. Meeting participants included the Southern Nevada Home Builders Association, Pulte Homes, Landwell Corporation, and Earl Burris' Men's Group.

May 2006: Multiple project presentations and meetings were held during May 2006. Meeting participants included Associated Builders and Contractors, Olympia Services, KB Homes, and Boyd Gaming.

June 2006: A meeting with the Metropolitan Water District of Southern California, a cooperating agency, was held to discuss their concerns regarding potential effects to water quality and downstream users. Additionally, meetings were held with Howard Hughes Corporation and the National Association of Industrial and Office Parks.

July 2006: Multiple project presentations and meetings were held during July 2006. Meeting participants included the Nevada Taxpayers Association, Associated General Contractors, Pardee Homes, Christopher Homes, and Station Casinos.

August 2006: A letter to the USFWS from the NPS, dated August 17, 2006 initiated formal consultation under the Endangered Species Act, Section 7. Meetings with the USFWS began in late August 2006 and continued through the end of the Section 7 consultation process. The USFWS had concerns regarding potential project impacts on the Mohave desert tortoise and the razorback sucker.

Postcards were mailed to the agencies, organizations, and individuals on the Draft EIS distribution list. The postcard notified the public that the FEIS would be distributed soon and requested that recipients of the postcard indicate whether they prefer to receive a hard copy or an electronic copy of the FEIS.

October 2006: The SCOP FEIS was distributed in late October 2006. Two hundred and fifty five hard copies and 222 CD copies of the FEIS were distributed via the U.S. Postal Service, Federal Express, and United Parcel Service. Copies of the FEIS were available for review at 22 libraries in Nevada, Arizona, California, and Utah (as noted above for the release of the DEIS). The FEIS was also posted on the CWC website and the NPS LMNRA website.

February – March 2007: The EPA NOA for the SCOP FEIS was published the *Federal Register* on February 23, 2007. Therefore, the 30-day waiting period began on February 23, 2007 and ended on March 26, 2007. The NPS/Reclamation NOA was published in the Federal Register on March 7, 2007.

During the 30-day period following the publication of the EPA FEIS NOA, one comment letter was received containing 23 comments. The comment letter was sent by the Sierra Club, Toiyabe Chapter from Reno, Nevada. The two primary concerns expressed in the letter, which were reiterated from previous comments, are that: 1) the use of reverse osmosis (RO) was not given enough consideration in the FEIS, and 2) some of the comments received on the Draft EIS, predominantly pertaining to treatment processes and water quality issues, were not adequately addressed. The FEIS clearly explains that the use of RO was eliminated from further consideration because it results in two significant impacts: 1) creation of a brine or reject-water stream which, due to its magnitude, could not be easily disposed of, and 2) loss of approximately 15 to 20 percent of input water reducing the return flow credits earned by southern Nevada, which is inconsistent with the project's purpose and need. Implementation of the Boulder Basin Adaptive Management Plan and the reasonable and prudent measures stipulated in the Biological Opinion issued by the USFWS further reduce the potential impacts to water quality.

May 2007: The Section 106 consultation with the SHPO was completed in May 2007 with the signing of the Programmatic Agreement. The Programmatic Agreement was signed by the NPS, Reclamation, SHPO, and CWC.

June 2007: The Section 7 consultation with the USFWS was completed in June 2007 with the issuance of the Biological Opinion for the SCOP, File No. 1-5-07-F-433.

## Conclusion

The Boulder Islands North Alternative, the selected action, best meets the requirements of section 101 of NEPA and provides the flexibility needed to manage the increasing effluent flows in the Valley, without degradation of NPS resources. Minimization, avoidance, and elimination of the potential environmental effects resulting from the SCOP would be ensured through implementing the mitigation measures previously described. The selection of the Boulder Islands North Alternative, as reflected by the analysis contained in the SCOP FEIS would not result in the impairment of park resources, and is the environmentally preferred course of action. Therefore, after thorough analysis with due consideration for the nature of public concerns expressed, and given the concurrence of the USFWS and SHPO in the determinations which have been made, the NPS has determined it will issue a right-of-way permit to the CWC to construct and operate the Boulder Islands North Alternative within the LMNRA.

**Approved:** Patricia L. Neubacher **Date:** 7/5/07

Jonathan B. Jarvis
Regional Director, Pacific West Region, National Park Service

for